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# Groundwater Recharge Suitability Mapping Using Analytical Hierarchy Process Based-Approach

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**Abstract :** Excessive groundwater pumping due to the increasing water demand, especially in the agricultural sector, causes groundwater scarcity. Groundwater recharge is the most important process that contributes to the water's durability. This paper is based on the Analytic Hierarchy Process multicriteria analysis to establish a groundwater recharge susceptibility map. To delineate aquifer suitability for groundwater recharge, eight parameters were used: soil type, land cover, drainage density, lithology, NDVI, slope, transmissivity, and rainfall. The impact of each factor was weighted. This method was applied to the El Fahs plain shallow aquifer. Results suggest that 37% of the aquifer area has very good and good recharge suitability. The results have been validated by the Receiver Operating Characteristics curve. The accuracy of the prediction obtained was 89.3%.

**Keywords :** AHP, El Fahs aquifer, empirical formula, groundwater recharge zone, remote sensing, semi-arid region
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